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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,044	08/03/2001	Plamen A. Demirev	UMARY 5	4090
23599 7590 11/03/2004 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			EXAMINER LIN, JERRY	
			ART UNIT 1631	PAPER NUMBER

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/856,044

**Applicant(s)**

DEMIREV ET AL.

**Examiner**

Jerry Lin

**Art Unit**

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 16 has been renumbered as claim 15.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3 Claims 1 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann et al. (*Use of Mass Spectrometric Molecular Weight Information to Identify Proteins in Sequence Databases*, 1993) as applied to claims 1 and 12-15 above, and further in view of Yates et al. (US 5538897).

Mann et al. disclose a method of searching proteins in sequence databases using the total molecular weight of the protein (intact proteins) (p. 339, column 1, 1<sup>st</sup> full paragraph; p. 340, 3<sup>rd</sup> full paragraph); a database of protein or nucleotide sequences converted to molecular weight (p. 339, column 2, 2<sup>nd</sup> full paragraph).

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Mann et al. do not disclose identifying the microorganisms from his methods.

Yates et al. describe a method of searching a protein database to identify an organism (column 17, lines 45-61).

It would have been obvious to one skilled in the art to combine the references of Mann et al. and Yates et al. Mann et al. state a desire for a more accurate method of matching protein samples to organisms (p. 340 column 2 – p. 341 column 1). Yates et al. provide such a technique. Given that both teach methods for identifying proteins in a sample by using mass spectrometry and both teach methods of searching protein databases, it would have been obvious to one skilled in the art to combine the two references.

This rejection was necessitated by the applicant's amendment.

### ***Response to Arguments***

4. Applicant's arguments filed 8/11/2004 have been fully considered but they are not persuasive.

5. Claims 1-5, 7-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (*Rapid Communications in Mass Spectrometry*, 1998), in view of Yates et al. (US 5538897 A).

Wang et al. and Yates et al. are applied as in the previous office action.

The Examiner agrees with the applicant that Wang et al. do not explicitly disclose searching a sequence database for a plurality of intact undigested proteins, however, Yates et al. do. Yates et al. teaches a method for using

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sequence databases to identify amino acid sequences of protein spectrum obtained by mass spectrometry wherein the database is seared for intact, undigested proteins (see at least col. 4, lines 14-24 and lines 49-65). Applicant responds by stating that the Yates et al.'s method requires that the protein be fragmented. There are two points for addressing the Applicant's response. First, Yates et al. disclose that there is no theoretical or practical limit to the size of the proteins used in his method (column 19). Yates et al. has experimentally used proteins of up to 26 residues (column 19). Yates et al. could perform his method on small proteins such as cyclotides. Second, the claims as written do not require any particular input in order to search for intact proteins. As the claim is written, a user may input sequences of the full protein or of only a fragment of a protein. Furthermore, a user may input mass spectrometry data as well to search for full sequences.

Thus given the desire of both Yates et al. and Wang et al. to create a method of rapid detection of proteins and the organisms that produce them, and the similarity of their methods such as their MS methods, it would have been obvious to one of ordinary skill in the art to combine the methods to gain the ability to search sequence databases using mass spectrometry data.

#### *Status of the Claims*

Claims 1-5, and 7-15 are pending.

Claims 1-5, and 7-15 are rejected.

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Any rejections from previous office actions not recited in this action are withdrawn.

*Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561. The examiner can normally be reached on 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571) 272-0722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jl

*Michael Woodward* 10/20/04  
Supervisor  
Art Unit 1631